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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,260	03/12/2004	Samch Sowelam	P11207.00	2234
27581	7590	08/02/2006	EXAMINER	
MEDTRONIC, INC. 710 MEDTRONIC PARK MINNEAPOLIS, MN 55432-9924			LAYNO, CARL HERNANDZ	
			ART UNIT	PAPER NUMBER
			3766	

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/799,260	<b>Applicant(s)</b> SOWELAM ET AL.	
	<b>Examiner</b> Carl H. Layno	<b>Art Unit</b> 3766	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-12, 16, 20-22, 25-27, 30-37 and 40-42 is/are rejected.
- 7) ☒ Claim(s) 8, 9, 13-15, 17-19, 23, 24, 28, 29, 38, 39 and 43-47 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/16/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. Acknowledgment is made of applicant's Information Disclosure Statement (PTO-1449), which was received by the Office on November 16, 2005.

### ***Drawings***

2. The drawings are objected to because of minor informalities. See attached PTO-948 for Draftsperson's comments. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2-5, 30, and 32-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regard to claims 2-5, the claim is incomplete and indefinite in that, as written, no additional method steps are set forth in the claim language. To overcome this rejection, the Examiner recommends changing the claim language to read as follows: “wherein deploying one of the at least two cardiac wall motion sensors comprises deploying an accelerometer sensor” (claim 2), “wherein deploying the accelerometer sensor comprises deploying a multiple axis accelerometer” (claim 3), etc.

In regard to claim 30, the claim is indefinite and incomplete in that no additional positive structure is recited. As written, only a method step is recited rather than the structure requisite to perform the recited method.

In regard to claims 32-35, the claims are indefinite and incomplete in that they positively recite sensor structures rather than the programming instructions, which are used to communicate with them. To overcome this rejection, the Examiner recommends incorporating “instructions” in each claim so that they read as follows (example): “A medium according to claim 31, further including instructions for communicating with one of said cardiac wall motion sensors, wherein said sensor is an accelerometer sensor.” (claim 32), etc.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 5-7, 10-12, 16, 20-22, 25-27, 31, 35-37, and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stadler et al (US 6,795,732) in view of McClure et al (US 5,549,652).

In regard to claims 1, 16, and 31, the Stadler et al (US 6,795,732) patent describes an implantable medical device (Fig.1) equipped with sonomicrometers for detecting cardiac wall motion. Specifically, the device comprises cardiac leads **16**, **32**, and **52** for placement in the right atrium (RA), right ventricle (RV), and left atrium/ventricle (LA,LV), respectively. Each of these leads includes a sonomicrometer (piezoelectric crystals - **74**, **72**, and **70**, respectively, col.35, lines 33-57) for wall motion sensing. In use, one crystal acts as an ultrasonic transmitter, while the other two crystals sense this ultrasonic signal. Data from these sensors is used to identify “fiducial points” comprising the “Max. LV-RV” (R-wave occurrence) and “Min. LV-RV” (end of systolic ejection) (col. 19, lines 39-52). A time difference between these points is taken (Fig.7) and used to determine left ventricular output volume. The shorter the LV-RV distance, the greater the ventricular output volume – which is indicative of better ventricular synchrony. Unlike applicant’s claimed device, the Stadler et al device does not specify the use of filters for filtering received wall motion sensing signals.

The McClure et al (US 5,549,652) patent also discloses an implantable cardiac wall motion sensing medical device (Fig.1) that teaches the use of a bandpass filter (BPF) 120 for eliminating noise from received motion sensing data.

To have specified the use of a filter on the Sadler et al device would have been an obvious well known modification to one of ordinary skill for eliminating unwanted noise in the sensed wall motion signals, as exemplified by McClure et al (Fig.1)

In regard to claims 5, 20, and 35, sonomicrometer sensors 70, 72, and 74 are cylindrical piezoelectric crystal tubes (col.11, lines 36-38).

In regard to claims 6, 7, 10, 11, 21, 22, 25, 26, 36, 37, 40, and 41, the sonomicrometer of Stadler et al senses an R-wave "Max. LV-RV" (Fig.7) to begin its "sensing window" (col.19, lines 44-46).

In regard to claims 12, 27, and 42, hemodynamic data produced by the sensors of Stadler et al can be used to adjust V-V pacing delay of a pacemaker (col.23, lines 47-52).

#### *Allowable Subject Matter*

7. Claims 2-4, 30, and 32-34 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

8. Claims 8, 9, 13-15, 17-19, 23, 24, 28, 29, 38, 39, and 43-47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

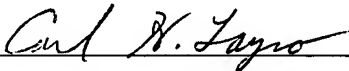
The Nehls et al (US 2005/0027320), Burnes et al (US 2004/0220631), Gebhardt et al (US 2004/0225332), and Overall et al (US 2004/0260346) patent publications were cited for their pertinent wall motion sensing features. However, none recited all of applicant's claimed combination of features, method steps, and corresponding programming instructions.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carl H. Layno whose telephone number is (571) 272-4949. The examiner can normally be reached on 9/4/5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert E. Pezzuto can be reached on (571) 272-6996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



**CARL LAYNO**  
**PRIMARY EXAMINER**

CHL  
7/31/2006